

**REMARKS**

Reconsideration of this application in view of the above amendments and following remarks is requested. After entry of this amendment, claims 18, 19, 21 and 23-43 (a total of twenty-four claims) are pending in the application. Claims 18, 29, 30, 33 and 37 are amended; claims 20 and 22 are canceled; and claims 39-43 are added.

In the office action dated August 12, 2004, the examiner rejects claims 18-32 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention; rejects claim 29 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement; rejects claim 37 under 35 U.S.C. §101 as being directed to non-statutory subject matter; rejects claims 18-32 under 35 U.S.C. §102(b) as anticipated by Graefe (U.S. Pat. No. 5,822,747); and rejects claims 33-36 and 38 under 35 U.S.C. §103(a) as being unpatentable over Graefe (U.S. Pat. No. 5,822,747) in view of Beavin (U.S. Pat. No. 5,940,819).

***Claim Rejections – 35 USC § 112***

The examiner rejects claims 18-32 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, the examiner references claims 18 and 30 as reciting the pronoun “those,” thereby rendering claims 18 and 30 indefinite. Applicant has amended claims 18 and 30 to remove the pronoun.

The examiner references claim 18 as reciting the limitation “repeating the preceding act,” without providing sufficient antecedent basis. Applicant has amended claims 18 and 30 to identify the preceding act, thereby providing sufficient antecedent basis.

The examiner rejects claim 29 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement, characterizing the word “subtree” as not being sufficiently described in the specification to convey to one skilled in the art that the inventor had possession of the claimed invention at the time of application filing.

Applicant respectfully traverses the examiner’s rejection, and directs the examiner to page 14, lines 21 to 24, where the word “subtree” is specifically cited, and directs the examiner to the paragraph beginning on page 14, line 9, which provides a detailed description of the meaning of “subtree,” thereby conveying to one skilled in the art that the inventor had possession of the claimed invention at the time of application filing.

***Claim Rejections – 35 USC § 101***

The examiner rejects claim 37 under 35 U.S.C. §101 as being directed to non-statutory subject matter, stating that the preamble only recites a directory for data structure, not tangibly modified. Applicant has amended the preamble of claim 37 to direct the claim to statutory subject matter.

***Claim Rejections – 35 USC § 102***

Applicant respectfully traverses the examiner’s rejection of claims 18-32 under 35 U.S.C. §102(b) as anticipated by Graefe (U.S. Pat. No. 5,822,747). Graefe does not disclose each and every element of the claims.

Regarding the rejection of claims 18, Graefe fails to teach or suggest constructing an execution plan by selecting operators where rank data is determined for each operator that

distinguishes that operator from alternative operators in other groups, and where rank data is determined for each group. Where Graefe purportedly teaches a rank for each operator representing a number of alternative plans associated with that operator (Graefe, Fig's 15G and 15H), Graefe does not teach or suggest rank data determined for each operator that distinguishes that operator from alternative operators in other groups. Graefe's purported rank data for each operator may not be distinguishable from the rank data of operators in other groups.

Regarding dependent claims 23, 24 and added dependent claim 39, Graefe does not teach or suggest global rank designations, global rank designations that uniquely identify each alternative execution plan. Graefe also does not disclose assigning local ranks to operators related to a number of alternative operators associated with that operator in other of the groups.

Regarding independent claim 30, the examiner rejects the claim for substantially the same reasons as claim 18. Applicant traverses the rejection for essentially the same reasons as expressed above for independent claim 18 and dependent claims 23, 24 and 39, due to the similar features recited in independent claim 30. That is, Graefe does not teach or suggest determining rank data for each operator, determining rank data for each group, assigning a local rank to each operator, and producing a global rank for at least one execution plan from the rank data.

Regarding independent claim 37, Graefe fails to teach or suggest a directory including a global rank for each alternative plan that uniquely identifies one respective plan from every other alternative plan.

In addition to the arguments presented above for dependent claims 23, 24 and 39, dependent claims 19, 21, 23-29, 31 and 32 rely, either directly or indirectly, on above-identified independent claims 18 and 30, and are therefore patentable for at least the reasons mentioned above for claims 18 and 30.

***Claim Rejections – 35 USC § 103***

Applicant respectfully traverses the examiner's rejection of claims 33-36 and 38 under 35 U.S.C. §103(a) as being unpatentable over Graefe (U.S. Pat. No. 5,822,747) in view of Beavin (U.S. Pat. No. 5,940,819).

Regarding independent claim 33, the examiner characterizes Graefe as teaching a system for optimizing a database query and comprising the elements of the claimed invention except for not specifically teaching a validation module for validating the execution plans from the ranking module. The examiner characterizes Beavin as teaching the validation module. However, Graefe and Beavin fail to teach a ranking module that assigns each execution plan a unique global rank, based on operator rank data, which identifies one respective execution plan from all other possible execution plans.

Accordingly, since Graefe, whether alone or in combination with Beavin, fails to teach the invention of independent claim 33, applicant respectfully requests that the examiner reconsider the 35 USC § 103 rejection of claims 33-36 and 38.

***Claims Added by this Response and Amendment***

Claims 39-43 are added by this response and amendment to more completely cover certain aspects of applicant's invention.

Claim 39 is dependent on claim 18 and respectively recites additional features patentable over the prior art of record, such as; 1) assigning a local rank for each operator

related to a number of alternative operators associated with that operator in other of the groups; and 2) producing a unique global rank from the rank data for each of the alternative execution plan. The recitation of claim 39 finds support in portions of the specification including, but not limited to, page 7, lines 23-27; and page 9, line 9, through page 10, line 12.

Claims 40-42 recite a method for generating a plan for executing a database query, with independent claim 40 reciting elements patentable over the prior art of record, such as determining identification data for each operator related to other operators in the other of the groups, and determining identification data for each execution plan based on the identification data for each operator. Claim 40 finds support in portions of the specification including, but not limited to, page 7, lines 16-26. Dependent claim 41 recites that the identification data for each execution plan represents a combination of operator choices within the groups used to obtain the respective execution plan. Claim 41 finds support in portions of the specification including, but not limited to, page 9, lines 9-13. Dependent claim 42 recites that the rank data for the execution plans is represented by consecutive designations, which finds support at least at page 9, line 27, through page 10, line 12.

Claim 43 recites a method for generating a plan for a database query and recites elements patentable over the prior art of record, such as ranking the operators, assigning identifiers to the alternative execution plans based on the ranking of the operators; and assembling an execution tree for a selected execution plan by unranking the selected execution; wherein unranking the selected execution plan involves selecting one of the operators from each group associated with the identifier of the selected execution plan. Claim 43 finds support in portions of the specification including, but not limited to, page 3, lines 19-25; page 7, line 28 through page 8, line 6; and Figure 6.

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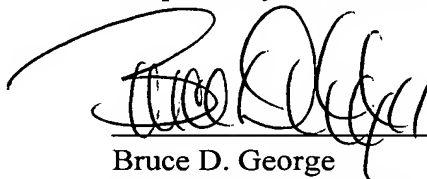
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### **CONCLUSION**

In light of the above amendments and remarks, applicant submits that pending claims 18, 19, 21 and 23-43 (a total of twenty-four claims) are allowable and requests that examiner issue an early notice of allowance. The examiner is invited to call the undersigned attorney in the event that a telephone interview will advance prosecution of this application.

Date: Nov 8, 2004

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Bruce D. George", is written over a horizontal line.

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